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# THE PLANT DISEASE REPORTER

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Division of Mycology and Disease Survey

Volume XXII Number 3

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BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE PLANT DISEASE REPORTER

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THE PLANT DISEASE SURVEY

DIVISION OF MYCOLOGY AND DISEASE SURVEY

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## RELATION OF TEMPERATURE TO FALL DAMAGE OF STRAWBERRIES BY LEAF SCORCH

G. A. Meckstroth

Darrow and Morrow 1/ reported that a number of fields of Klondike strawberries in the Chadbourn-Whiteville-Tabor section of North Carolina showed severe injury due to leaf scorch (Diplocarpon earliana (Ell. & Ev.) Wolf) in late fall of 1936. They made counts of living and dead leaves in one field showing very severe injury, and also made actual measurements of the living and dead leaves. They found that in the best parts of the field 93 percent of the leaf area was dead and in the worst parts 96 percent.

In order to collect data on comparative yields of the severely injured plants and those with better foliage, 50 badly diseased plants and 50 plants with good foliage were staked in the field referred to above on November 24, 1936. An attempt was made to find plants entirely free from scorch, but that was impossible; therefore, plants with the best foliage were selected even though part of their leaves were dead from the scorch disease, and these will be referred to hereafter as "healthy". At this time the healthy plants averaged six leaves per plant while the scorch plants averaged perhaps two leaves per plant; no record was made of the number of leaves on the badly scorched plants, but in nearly all most of the larger leaves had been killed and usually only one or two small young leaves remained.

On February 26, 1937, counts were made of the number of living leaves on the diseased and healthy plants. The diseased plants averaged 4 leaves, while the healthy plants averaged 8.7 leaves, per plant.

On April 21 counts were made of the number of leaves, number of fruits, and number of blossoms, buds and blossoms killed by frost; the figures are given in the following table:

| Condition of plants | Average number of leaves per plant | Average number of berries per plant | Average number per plant of blossoms, buds, and blossoms killed by frost |
|---|---|---|---|
| Scorch plants | 5.7 | 3.2 | 7.8 |
| Healthy plants | 9.8 | 8.4 | 15.6 |

In order to secure data on comparative yield of the scorch and healthy plants, the staked plants were picked on each picking date. The total yield for the 1937 season was 238 berries from the scorch plants as compared with

1/ Darrow, Geo. M. and E. B. Morrow. Late fall damage to strawberries by leaf scorch. Plant Disease Rptr. 21: 71-72. Mar. 1, 1937.

510 from the healthy plants, or an average yield of 4.7 berries per scorch plant as compared with 10.2 per healthy plant. Darrow has found that yield is correlated with leaf area in November and therefore he was of the opinion that the badly diseased plants would bear a very light crop in 1937. The yields obtained bear out his prediction, and emphasize the importance of protecting the foliage during the fall months if conditions are favorable for infection.

The most important contributory factor in the 1936 fall epidemic of leaf scorch probably was the high temperatures which prevailed from July till about the middle of November, especially during October. Records from the North Carolina Section of Climatological Data, U. S. Weather Bureau, show that during July, August, September, and October temperatures were above normal. During October the temperature averaged higher than in any October since 1919. The optimum temperature for development of the scorch fungus has been found to be between 72 and 80 degrees F.

In contrast to the higher than normal temperatures prevailing during the fall of 1936, the fall months of 1937 have been below normal and this appears to be reflected in the smaller amount of the scorch disease in the fields. Some fields in the Chadbourn area were examined on October 22, 1937, and although the disease was scattered throughout the fields the damage to the foliage was very light as compared with the foliage injury during the fall of 1936. The temperatures for the months of September, October, and November have all been below normal. September was the coolest on record since 1928. October was the coolest since 1930 and November was the coldest as a whole since 1917.

For comparing the fall months of 1936 and 1937 the monthly mean temperatures at Lumberton, North Carolina are given in the table below:

| Month | 1936 | 1937 |
|---|---|---|
| July | 81.4 | 80.0 |
| August | 80.8 | 79.8 |
| September | 77.0 | 71.4 |
| October | 65.5 | 60.2 |
| November | 50.5 | 49.4 |

(Division of Fruit & Vegetable Crops & Diseases).

# DISEASES OF SHADE AND ORNAMENTAL TREES: SUMMARY OF SPECIMENS RECEIVED IN 1937 AT THE NEW HAVEN OFFICE, DIVISION OF FOREST PATHOLOGY

Alma M. Waterman

ABIES

NEEDLE BLIGHT (Rehmiellopsis bohemica). New Hampshire on A. concolor.

DIE-BACK (Sphaeropsis sp.). Pennsylvania on A. fraseri.

ACER

MILDEW (Microsphaera alni). Oregon on A. macrophyllum.

LEAF BLISTER (Taphrina sp.). Virginia.

WILT (Verticillium sp.). Connecticut, Pennsylvania, Virginia, on A. platanoides.

AESCULUS HIPPOCASTANUM

LEAF BLOTCH (Guignardia aesculi). Maryland.

BETULA

CANKER (Melanconium bicolor). Iowa.

CORNUS

ROOT ROT (Armillaria mellea). New York.

LEAF SPOT (Septoria cornicola). District of Columbia.

CRATAEGUS

RUST (Gymnosporangium sp.). Louisiana, Washington.

FRAXINUS

LEAF SPOT (Cylindrosporium sp.). Washington.

ANTHRACNOSE (Gloeosporium aridum). Rhode Island.

RUST (Puccinia fraxinata). New Jersey.

JUNIPERUS

RUST (Gymnosporangium juniperi-virginianae). New York, Virginia.

LAGERSTROEMIA INDICA

MILDEW (Erysiphe lagerstroemiae). Florida.

PICEA PUNGENS

CANKER (Cytospora kunzei). Minnesota, New York, Pennsylvania, Vermont.

PINUS

CANKER (Caliciopsis pinea). North Carolina, Virginia on P. strobus.
CANKER (Cenangium abietis). New York on P. nigra, P. sylvestris.
CANKER (Cytospora sp.). Maryland on P. excelsa; Ohio, Virginia on P. strobus.
BARK-BLIGHT (Coccomyces pini). North Carolina on P. strobus.
LEAF CAST (Lophodermium pinastri). New York on P. strobus.
TIP-BLIGHT (Sphaeropsis ellisii). District of Columbia, New Jersey, New York, Pennsylvania, on P. nigra.

PLATANUS

MILDEW (Microsphaera alni). New York.
LEAF SPOT (Phyllosticta platani). District of Columbia.

POPULUS

CANKER (Cytospora chrysosperma). Virginia.
CANKER (Dothichiza populea). Virginia.
LEAF SPOT (Marssonia sp.). Virginia.
LEAF SPOT (Septoria musiva). Maine.

QUERCUS

TWIG BLIGHT (Diplodia longispora). Illinois.
ANTHRACNOSE (Gnomonia veneta). Maryland, New York, Virginia, on Q. alba.
MILDEW (Microsphaera alni). Virginia.
ROOT ROT (Nummularia punctulata). Tennessee.
LEAF BLISTER (Taphrina coerulescens). District of Columbia, Florida, Maryland, North Carolina, South Carolina, Virginia.

SALIX

STEM CANKER (Septomyxa exultata). Virginia.

SASSAFRAS

LEAF SPOT (Phyllosticta sassafras). Maryland.

SCIADOPITYS VERTICILLATA

LEAF SPOT (Phyllosticta sp.). Rhode Island.
TWIG BLIGHT (Sphaeropsis sp.). New Jersey.

SORBUS AMERICANA

RUST (Gymnosporangium sp.). Idaho.
CANKER (Sphaeropsis sp.). Connecticut.

TILIA AMERICANA

CANKER (Nectria cinnabarina). Illinois.
CANKER (Botryosphaeria sp.). New Jersey.

ULMUS

CANKER (Cytospora sp.). Nevada.
BLACK LEAF SPOT (Gnomonia ulmea). Alabama, District of Columbia, New York, Ohio, Pennsylvania, Texas, Virginia.

(Division of Forest Pathology, Bureau of Plant Industry, U. S. D. A. In co-operation with Osborn Botanical Laboratory, Yale University).

## TOBACCO DOWNY MILDEW APPEARS IN GEORGIA

E. E. Clayton

The first appearance this year of downy mildew (Peronospora tabacina) on tobacco was reported by J. G. Gaines on February 2, when it was found in one bed in Cook County, Georgia. On February 4 it was found in another bed, in Coffee County. Both of these are old beds, used for the second year without sterilization.

In 1937 the date of first appearance was January 25, a week earlier. This year, however, the plants are about two weeks slower in development, so that in relation to the stage of plant growth the disease has actually appeared earlier than it did in 1937.

Tobacco growers in both Georgia and Florida are making extensive preparations to combat the disease. Many are planning to spray their beds and some will try the gas treatment. One large grower furnished his tenants, approximately one hundred, with about twenty sprayers to spray 17,000 square yards of plant beds. (Division of Tobacco and Plant Nutrition).

## BRIEF NOTES ON PLANT DISEASES

INTERNAL DISCOLORATION OF POTATO TUBERS IN MAINE, NOVEMBER AND DECEMBER: It is estimated by one authority that several million bushels are involved badly enough to affect the grade. The condition is probably due to net necrosis (leaf roll) and to stem-end browning (cause unknown). A student survey in December disclosed none in 18 bins of the Bliss Triumph, Chippewa, and Katahdin varieties, and some in Irish Cobbler, Spaulding Rose, and Green Mountain varieties. In Green Mountains, the percentage of tubers with internal discoloration in three parts of Aroostook County were:

| Part of County | Number of Bins | Percentage of internal discoloration |
|---|---|---|
| Northern | 51 | 1.1 |
| Central | 30 | 7.9 |
| Southern | 38 | 20.8 |

(Donald Folsom, Maine Agricultural Experiment Station).

POTATO LATE BLIGHT AND OTHER PLANT DISEASES OBSERVED IN FLORIDA: There is a real outbreak of late blight (Phytophthora infestans) in the Homestead area. I did see a few fields where thorough spraying was holding the disease in check, but the majority of fields had from 25 to 100 percent of the leaf area destroyed. The landscape had much the same appearance as one expects in a blight year in northern Maine. Many fields were entirely killed. Digging was in progress and the yields are good. Fortunately the crop goes to market immediately. There would be much tuber rot if these potatoes had to go into storage.

Bean rust (Puccinia phaseoli typica) is also almost universal in the Homestead area. I also saw it on the more mature plantings around Lake Okeechobee.

The Helminthosporium leaf spots of sugar cane, eye spot (H. ocellum) and brown stripe (H. stenospilum), were also much in evidence at Canal Point. This is usual during the winter, but they disappear in the summer, I am told.

Generally speaking, from the point of view of a plant pathologist, things are distressingly healthy in Florida. There is a little early blight of tomatoes (Alternaria solani) and of celery (Cercospora apii), but no damage. Sclerotinia rot of celery (S. sclerotiorum) is doing a lot of damage at Sarasota. (H. A. Edson, Division of Mycology and Disease Survey, Feb. 14).

SCAB-LIKE SPOT ON HOLLY LEAVES IN OREGON: Occasionally during the past four years we have received specimens of a scab-like spot on holly leaves. Superficially, the rough, raised, scab-like humps resemble the surface changes which follow spine injury resulting from the whipping of the leaves one against the other. The true scab evidences a solid, raised mass and does not show the pin pricks characteristic of spine injury. Usually, there is no visible fungus growth on the cankers. We have two collections, one from Grants Pass, and one from Oregon City, showing a Cladosporium-like growth. Specimens of this were sent to Dr. A. E. Jenkins to determine a possible relationship to Sphaceloma. She writes, "The fungus shown looks more like an ordinary Cladosporium than like a Sphaceloma".

This holly scab makes the leaves very unsightly and should it become common would be of economic importance. (Frank P. McWhorter, Oregon Agricultural Experiment Station and Bureau of Plant Industry, Division of Horticultural Crops and Diseases, Jan. 25).

## JANUARY WEATHER

Figure 1 shows that the relatively warmest weather occurred over the northern Rocky Mountain region and in portions of the Colorado Plateau and southern Great Plains; in these areas the month was from 3° to as many as 11° warmer than normal, with the largest excesses noted in the northern Great Plains and northern Rocky Mountain region.

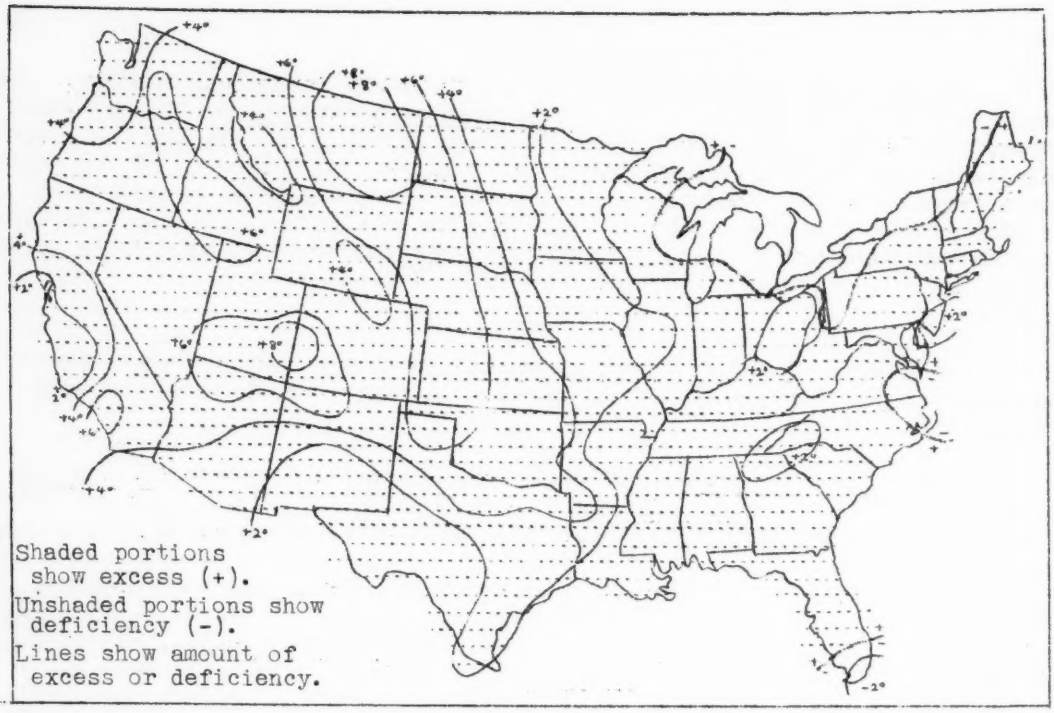


Fig. 1. Departure of Mean Temperature from the Normal for January 1938.

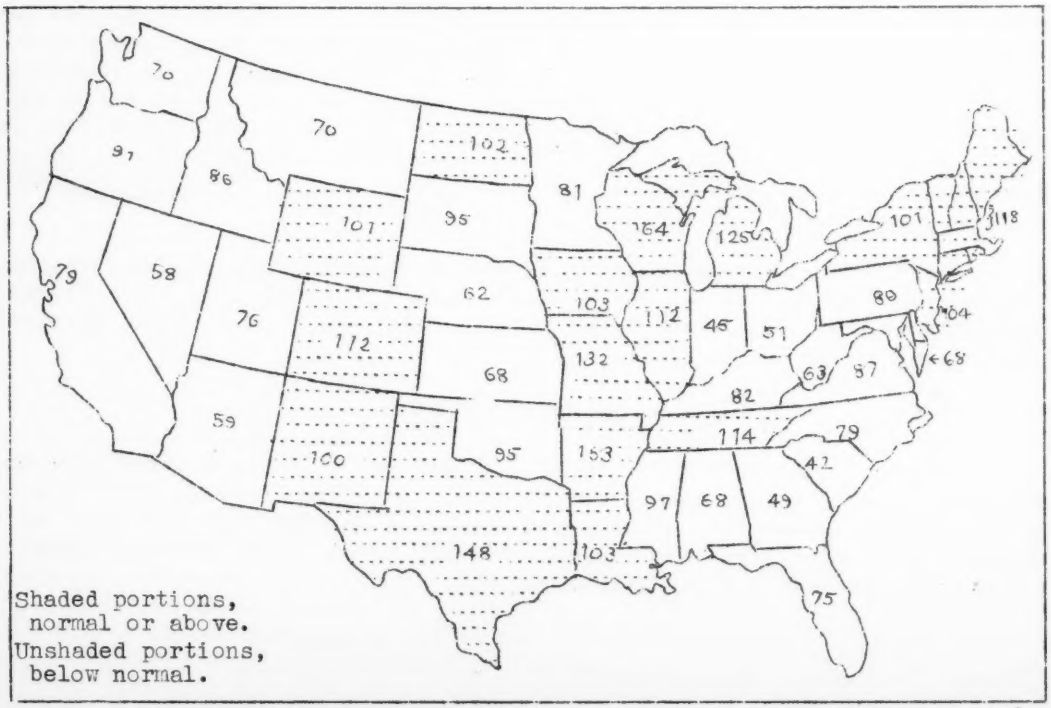


Fig. 2. Percentage of Normal Precipitation, by States, for January 1938.

January precipitation was subnormal in more than half the country, with the greatest deficiencies noted in portions of the Plains States, the upper Mississippi Valley, the Southwest, the northern Rocky Mountain region, and the Pacific States. Another dry area centered over the Ohio Valley, much of the Southeast, and the Appalachian and eastern Lake regions. Portions of Kansas and Nebraska had only 3 to 25 percent of the normal January fall, while in the eastern dry section the percentage ranged from 28 to 94 percent.

In a rather wide belt reaching from the Rio Grande Valley in Texas eastward and northeastward to the northern Lake region precipitation was normal or decidedly above, with several stations in southwestern Texas, southeastern New Mexico, Arkansas, Iowa, and Wisconsin reporting more than 200 percent. Central and southern New England also had above-normal precipitation, as did portions of central California, the Great Basin, Colorado Plateau, and portions of the northern Great Plains.

Figure 2 shows the percentage of normal precipitation, by States, for the month. Practically all the Rocky Mountain section, North Dakota, much of the Mississippi Valley, upper Lake region, Tennessee, and New England had above-normal falls; Wisconsin, with 164 percent of the normal, was the relatively wettest State. Despite the above-normal falls of January, subsoil moisture is still deficient in much of this area.

Deficiencies were greatest over the Great Plains in Nebraska and Kansas, where the month brought only 62 to 68 percent of the normal fall. In the Ohio Valley deficiencies were also marked, and another dry area centered in the Southeastern States. At the close of the month snow storage was still deficient in many Western States and dust storms, at times severe, were reported in portions of the near Southwest and over the central and southern Great Plains. (Weekly Weather and Crop Bulletin for the week ending Feb. 8).